

reason why uniform pellucid mediums, (such as Water, Glass, or Crystal) have no sensible reflexion but in their external superficies, where they are adjacent to other mediums of a different density, is because all their contiguous parts have one and the same degree of density.

P R O P. II.

The least parts of almost all natural Bodies are in some measure transparent: And the opacity of those Bodies ariseth from the multitude of reflexions caused in their internal Parts.

That this is so has been observed by others, and will easily be granted by them that have been conversant with Microscopes. And it may be also tryed by applying any substance to a Hole through which some Light is immitted into a dark room. For how opaque soever that substance may seem in the open Air, it will by that means appear very manifestly transparent, if it be of a sufficient thinness. Only white metalline Bodies must be excepted, which by reason of their excessive density seem to reflect almost all the Light incident on their first superficies, unless by solution in menstruums they be reduced into very small particles, and then they become transparent.

P R O P. III.

Between the parts of opaque and coloured Bodies are many spaces, either empty or replenished, with mediums of other densities; as Water between the tinging corpuscles wherewith any Liquor is impregnated, Air between the
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aqueous globules that constitute Clouds or Mists; and for the most part spaces void of both Air and Water, but yet perhaps not wholly void of all substance, between the parts of hard Bodies.

The truth of this is evinced by the two precedent Propositions: For by the second Proposition there are many reflexions made by the internal parts of Bodies, which, by the first Proposition, would not happen if the parts of those Bodies were continued without any such interstices between them, because reflexions are caused only in superficies, which intercede mediums of a differing density by Prop. 1.

But further, that this discontinuity of parts is the principal cause of the opacity of Bodies, will appear by considering, that opaque substances become transparent by filling their pores with any substance of equal or almost equal density with their parts. Thus Paper dipped in Water or Oyl, the *Oculus mundi* Stone steep'd in Water, Linnen-cloth oyled or varnished, and many other substances soaked in such Liquors as will intimately pervade their little pores, become by that means more transparent than otherwise; so, on the contrary, the most transparent substances may by evacuating their pores, or separating their parts, be rendred sufficiently opaque, as Salts or wet Paper, or the *Oculus mundi* Stone by being dried, Horn by being scraped, Glass by being reduced to powder, or otherwise flawed, Turpentine by being stirred about with Water till they mix imperfectly, and Water by being formed into many small Bubbles, either alone in the form of froth, or by shaking it together with Oyl of Turpentine, or with some other convenient Liquor, with which it will
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